



#13

Docket No. CL001202  
Application Serial No. 09/820,095  
Inventors: Ming-Hui WEI et al.  
Title: ISOLATED HUMAN G-PROTEIN COUPLED RECEPTORS...

```
1 TTGCTGACTC ATGTGCCCCG AGCTAGCAGG AGCTGGCAGC ATGGGCTCCC
51 CAGGGGGCTAC GACAGGCTGG GGGCTTCTGG ATTATAAGAC GGAGAAAGTGG
101 GCTCTCCTCG CCAAAAAAGG CTACCAGGAG CGGGACCTGG AACCCAGTT
151 TTCCATCATC ACCAAACTCA AAGGGGTTTC CGTCACTCAG ATCAAGGAGC
201 TTGGAACCGG GCTGTGGGAT GTGGCCGACT TCGTGAAGCC ACCTCAGGGA
251 GAGAACGTGT TCTTCTTGGT GACCAACTTC CTTGTGACGC CAGCCCAAGT
301 TCAGGGCAGA TGCCCAGAGC ACCCGTCCGT CCCACTGGCT AACTGCTGGG
351 TCGACGAGGA CTGCCCCGAA GGGGAGGGAG GCACACACAG CCACGGTGTA
401 AAAACAGGCC AGTGTGTGGT GTTCAATGGG ACCCAGAGGA CCTGTGAGAT
451 CTGGAGTTGG TGCCCAGTGG AGAGTGGCGT TGTGCCCTCG AGGCCCTGTC
501 TGGCCCGAGC CGGAACTTC ACACGTTCAC TCAAAAACAC AGTCACCTTC
551 AGCAAGTTCA ACTTCTCTAA GTCCAATGCC TTGGAGACCT GGGACCCAC
601 CTATTTTAAG CACTGCCGCT ATGAACCACA ATTCAGCCCC TACTGTCCCC
651 TGTTCGCGAT TGGGGACCTC GTGGCCAAGG CTGGAGGGAC CTTGAGGAC
701 CTGGCGTTGC TGGGTGGCTC TGTAGGCATC AGAGTTCACT GGGATTGTGA
751 CCTGGACACC GGGGACTCTG GCTGCTGGCC TCACTACTCC TTCCAGCTGC
801 AGGAGAAGAG CTACAACCTC AGGACAGCCA CTCCTGGTG GGAGCAACCG
851 GGTGTGGAGG CCCGCACCCT GCTCAAGCTC TATGGAATCC GCTTCGACAT
901 CCTCGTCAGC GGGCAGGCAG GGAAGTTCGG GCTCATCCCC ACGGCCGTCA
951 CACTGGGCAC CGGGGCAGCT TGGCTGGGCG TGGTCACCTT TTTCTGTGAC
1001 CTGCTACTGC TGTATGTGGA TAGAGAAGCC CATTCTACT GGAGGACAAA
1051 GTATGAGGAG GCCAAGGCCC CGAAAGCAAC CGCCAACCTC GTGTGGAGGG
1101 AGCTGGCCCT TGCATCCCAA GCCCGACTGG CCGAGTGCCCT CAGACGGAGC
1151 TCAGCACCTG CACCCACGGC CACTGCTGCT GGGAGTCAGA CACAGACACC
1201 AGGATGGCCC TGTCCAAGTT CTGACACCCA CTTGCCAACC CATTCGGGA
1251 GCCTGTAGCC GTTCCCTGCT GGTGTGAGAGT TGGGGGCTGG GAAGGGCGGG
1301 GCCCTGCTCG GGGATCTCAA GGATGAGGCC CCAGCATGGA GGATTGGGG
1351 TAGAATTCCA CCCTTGAACC CCAGCAGACA GTCCCTCCCC TGAATCCAC
1401 CTTGGTAGGG TGCTGCCTCA GGGAGCCATA GAAGTCGGCT GTGTTTGTAG
1451 ACGGCGACAG AACCTGACCC GTGGAGACTG GGAGAGCCCA GCAGGCACCT
1501 GTATTGTCAG GCTCCGACTG CATGTGGCAG GGGCTCCTGC TGCGTCTGGG
1551 CCTGGAGGTC TCTCTCCAG TGCTCTGTCC CCAGTGTTC TAGCAGAGGT
1601 ATGCTTACCA GCTGTAGCA CAGACCTCC TGCTGCCTGG GTCCTGGCCC
1651 TCCTCCCCCA TCTGCACCCC CATCATAGGT AGAGACCCCA CCCTCCCATC
1701 GGTCTACAT GGGCTGTGTC AGCTGGAGCC AAAAAGGCAA GGCAGAAAGA
1751 GGAGTGATGG GGGAGGGGGA TTGTTTCAGC TTCTCTGGTG CTGTGATGCC
1801 CCAGGAGAGT CTAATCTAG GGAATGGGGT GGAGTAGGCA GATAATCCAC
1851 CTCCTATATC CCCAGGCAAG GCGGAGCAT GTGTCTTGG CCCACACCTG
1901 CTTAGTTTAT GAGGACCGGC TGCTTCCAG TGGTAGCCCT TTTGCCATGG
1951 AGGTCTGGGA GAGAGAGCAG AGGGCGGCAG GGCTAAGTTG GTGATCATTG
2001 GGTCTTCTAG GACCTTCTAT ATCCCTCCTC GGTAACCCCC CAGCCCAACC
2051 CCTTGAATC TTTCTCCAG GCTTCTCTAG AGCCCTGGGG GTGGGAGGCT
2101 GTGGGAGGCT GTACATCTGA AATCACTTC AGTCCAAGT ATACCTAGGA
2151 AGCTGTCTGG GCAGCTGCTC GAGGGAGGCC CTGGCTCTGA TCCCAGGCTG
2201 GATGGAGTGG CTGGAAGGAA TGGTTCCAAA CAACACCACC GAGATCTCCC
2251 TCAGGCTGGC CAGGTTTTCG AGCTGGAATT CTCCTCTTGG TCCCAGGGGG
2301 GGGCAGGGAA TTCTAAGTGT CCACCCAGG GAGGCAAGGG GCTGCTTTCC
2351 ACTGTGGGTA CCTGGTGATC AGGGCAAGCT GTGGAGGGCC AGGGGTGGGG
2401 CTGAGACTGG GCTGACATCT AGAATCACCT GCCACCTGGA GCCTCAGTAA
2451 AATGCCTGGG GTCCCTGCTG CCTCTCAATC TCCAGAGCCA TGTCCATGGG
2501 GAGGTGGGCT CTGAAGGGCG AAGGTGGGAG AGCAGGGCCC CTGAGGCTG
2551 GGTATCCAAG GAGGGGCACG TGCACCTGAT TCTCCTTGGG GCCCAGAGGA
2601 AGCTGATGTC ATGGCTGGAC AAAGTCACGG AGTAAAGCCA GCAAAGCCAC
2651 CAAAAA AAAA AAAA AAAA AAAA
```

(SEQ ID NO: 1)

## FEATURES:

5'UTR: 1 - 40  
Start Codon: 41  
Stop Codon: 1256  
3'UTR: 1259

FIGURE 1A



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**HOMOLOGOUS PROTEIN:**

**Top 10 BLAST Hits:**

	Score (bits)	E Value
Sequences producing significant alignments:		
CRA 18000005098398 /altid=gi 4885535 /def=ref NP_005437.1  puri...	857	0.0
CRA 335001098681202 /altid=gi 11417813 /def=ref XP_009854.1  pu...	857	0.0
CRA 1000682348238 /altid=gi 6469324 /def=gb AAF13303.1 AF065385...	855	0.0
CRA 18000005129684 /altid=gi 6754966 /def=ref NP_035158.1  puri...	621	e-177
CRA 18000005027891 /altid=gi 6981322 /def=ref NP_036853.1  p2X6...	604	e-172
CRA 148000001425983 /altid=gi 7920253 /def=gb AAF70599.1 AF2050...	360	2e-98
CRA 18000005038217 /altid=gi 7447773 /def=pir S71344 purinergi...	348	8e-95
CRA 18000005027890 /altid=gi 1709522 /def=sp P51578 P2X5_RAT P2...	345	7e-94
CRA 18000005064403 /altid=gi 4505549 /def=ref NP_002551.1  puri...	318	9e-86
CRA 18000005196095 /altid=gi 4099121 /def=gb AAD00553.1  (U8399...	318	9e-86

**EST:**

	Score (bits)	E Value
Sequences producing significant alignments:		
gi 11617343 /dataset=dbest /taxon=96...	1164	0.0
gi 6992441 /dataset=dbest /taxon=960...	648	0.0
gi 4990980 /dataset=dbest /taxon=9606 ...	579	e-163
gi 10325489 /dataset=dbest /taxon=96...	464	e-128
gi 2195075 /dataset=dbest /taxon=9606 ...	287	4e-75

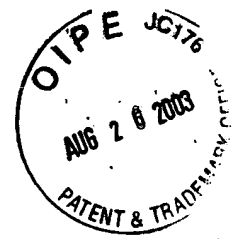
**EXPRESSION INFORMATION FOR MODULATORY USE:**

gi|11617343 Brain- anaplastic oligodendroglioma  
gi|6992441 Chronic lymphocytic leukemia  
gi|4990980 Lung- carcinoid  
gi|10325489 lung - large cell carcinoma  
gi|2195075 Colon

**Tissue expression:**

Whole brain

FIGURE 1B



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1 MGSPGATTGW GLLDYKTEKW ALLAKKGYQE RDLEPQFSII TKLKGVSVTQ  
51 IKELGNRLWD VADFKVPQOG ENVFFLVTFN LVTQAQVQGR CPEHPSVPLA  
101 NCWVDEDCPE GEGGTHSHGV KTGQCVVFNG THRTCEIWSW CPVESGVVPS  
151 RPLLAQAQNF TLFIKNTVTF SKFNFSKSNA LETWDPTYFK HCRYEPQFSP  
201 YCPVFRIGDL VAKAGGTFFED LALLGGSVGI RVHWDCDLDT GDSGCWPHYS  
251 FQLQEKSYNF RTATHWWEQP GVEARTLLKL YGIRFDILVT GQAGKFGLIP  
301 TAVTLGTGAA WLGVVTFFFCD LLLLYVDREA HFYWRTKYEE AKAPKATANS  
351 VWRELALASQ ARLAELRRS SAPAPTATAA GSQTQTPGWP CPSSDTHLPT  
401 HSGSL (SEQ ID NO: 2)

**FEATURES:**

**Functional domains and key regions:**

[1] PDOC00001 PS00001 ASN\_GLYCOSYLATION  
N-glycosylation site

Number of matches: 3

1 129-132 NGTH  
2 159-162 NFTL  
3 174-177 NFSK

[2] PDOC00004 PS00004 CAMP\_PHOSPHO\_SITE  
cAMP- and cGMP-dependent protein kinase phosphorylation site

368-371 RRSS

[3] PDOC00005 PS00005 PKC\_PHOSPHO\_SITE  
Protein kinase C phosphorylation site

Number of matches: 2

1 17-19 TEK  
2 131-133 THR

[4] PDOC00006 PS00006 CK2\_PHOSPHO\_SITE  
Casein kinase II phosphorylation site

Number of matches: 2

1 217-220 TFED  
2 336-339 TKYE

[5] PDOC00008 PS00008 MYRISTYL  
N-myristoylation site

Number of matches: 10

1 2-7 GSPGAT  
2 5-10 GATTGW  
3 45-50 GVSVTQ  
4 113-118 GGTHSH  
5 119-124 GVKTGQ  
6 130-135 GTHRTC  
7 146-151 GVVPSR  
8 225-230 GGSVGI  
9 297-302 GLIPTA  
10 306-311 GTGAAG

[6] PDOC00932 PS01212 P2X\_RECEPTOR  
ATP P2X receptors signature

225-251 GGSVGIRVHWDCDLDTGDSGCWPHYSF

Membrane spanning structure and domains:

Helix	Begin	End	Score	Certainty
1	69	89	0.782	Putative
2	299	319	1.835	Certain

**BLAST Alignment to Top Hit:**

>CRA|18000005098398 /altid=gi|4885535 /def=ref|NP\_005437.1|  
purinergic receptor P2X-like 1, orphan receptor; P2X  
specifically expressed in skeletal muscle; purinoceptor  
P2X6 [Homo sapiens] /org=Homo sapiens /taxon=9606

**FIGURE 2A**



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```
/dataset=nraa /length=431
Length = 431
Score = 857 bits (2189), Expect = 0.0
Identities = 405/431 (93%), Positives = 405/431 (93%), Gaps = 26/431 (6%)

Query: 1  MGSPGATTGWGLLDYKTEK-----WALLAKKGYQERDLE 34
        MGSPGATTGWGLLDYKTEK                WALLAKKGYQERDLE
Sbjct: 1  MGSPGATTGWGLLDYKTEKYVMTRNWRVGALQRLQFGIVVYVVGWALLAKKGYQERDLE 60

Query: 35  PQFSIITKLKGVSVTQIKELGNRLWDVADFVKPPQGENVFFLVTNFLVTPAQVQGRCPHE 94
        PQFSIITKLKGVSVTQIKELGNRLWDVADFVKPPQGENVFFLVTNFLVTPAQVQGRCPHE
Sbjct: 61  PQFSIITKLKGVSVTQIKELGNRLWDVADFVKPPQGENVFFLVTNFLVTPAQVQGRCPHE 120

Query: 95  PSVPLANCWVDEDCPEGEGGTHSHGVKTGQCVVFNGTHRTCEIWSWCPVESGVVPSRPLL 154
        PSVPLANCWVDEDCPEGEGGTHSHGVKTGQCVVFNGTHRTCEIWSWCPVESGVVPSRPLL
Sbjct: 121 PSVPLANCWVDEDCPEGEGGTHSHGVKTGQCVVFNGTHRTCEIWSWCPVESGVVPSRPLL 180

Query: 155  AQAQNFTLFIKNTVTFSKFNFSKSNALETWDPTYFKHCRYEPQFSYPCPVFRIGDLVAKA 214
        AQAQNFTLFIKNTVTFSKFNFSKSNALETWDPTYFKHCRYEPQFSYPCPVFRIGDLVAKA
Sbjct: 181  AQAQNFTLFIKNTVTFSKFNFSKSNALETWDPTYFKHCRYEPQFSYPCPVFRIGDLVAKA 240

Query: 215  GGTTFEDLALLGGSVGIRVHWDCLDLDGSGCWPWFYFQLEKSYNFRATATHWWEQPGVEA 274
        GGTTFEDLALLGGSVGIRVHWDCLDLDGSGCWPWFYFQLEKSYNFRATATHWWEQPGVEA
Sbjct: 241  GGTTFEDLALLGGSVGIRVHWDCLDLDGSGCWPWFYFQLEKSYNFRATATHWWEQPGVEA 300

Query: 275  RTLLKLYGIRFDILVTGQAGKFLIPTAVTLGTGAAWLGVVTFCDLLLLLYVDREAHFYW 334
        RTLLKLYGIRFDILVTGQAGKFLIPTAVTLGTGAAWLGVVTFCDLLLLLYVDREAHFYW
Sbjct: 301  RTLLKLYGIRFDILVTGQAGKFLIPTAVTLGTGAAWLGVVTFCDLLLLLYVDREAHFYW 360

Query: 335  RTKYEEAKAPKATANSVWRELALASQARLAELRRSSAPAPTATAAGSQTQTPGWPCPSS 394
        RTKYEEAKAPKATANSVWRELALASQARLAELRRSSAPAPTATAAGSQTQTPGWPCPSS
Sbjct: 361  RTKYEEAKAPKATANSVWRELALASQARLAELRRSSAPAPTATAAGSQTQTPGWPCPSS 420

Query: 395  DTHLPTHSGSL 405
        DTHLPTHSGSL
Sbjct: 421  DTHLPTHSGSL 431 (SEQ ID NO: 4)
```

Hammer search results (Pfam):

Scores for sequence family classification (score includes all domains):

Model	Description	Score	E-value	N
CE00369	E00369 P2X6_receptor	1180.5	0	2
PF00864	ATP P2X receptor	870.0	7.4e-258	1
CE00207	CE00207 PURINERGIC	366.8	5.9e-111	1
CE00370	E00370 P2X4_receptor	336.8	1.9e-109	1
CE00368	E00368 P2X7_receptor	124.1	6.5e-36	1
PF00095	WAP-type (Whey Acidic Protein) 'four-disulfi	8.7	1.1	1
PF01841	Transglutaminase-like superfamily	6.0	6.3	1
PF01368	DHH family	2.5	6.8	1

Parsed for domains:

Model	Domain	seq-f	seq-t	hmm-f	hmm-t	score	E-value
CE00369	1/2	1	19	1	21	36.3	2.1e-11
PF00095	1/1	87	111	1	40	8.7	1.1
PF01841	1/1	120	130	1	11	6.0	6.3
PF01368	1/1	221	237	1	19	2.5	6.8
CE00368	1/1	54	299	85	333	124.1	6.5e-36
CE00370	1/1	20	338	46	372	336.8	1.9e-109
CE00207	1/1	20	345	47	393	366.8	5.9e-111
CE00369	2/2	20	351	48	379	1143.5	0
PF00864	1/1	20	354	34	395	870.0	7.4e-258

FIGURE 2B



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1 TCTCCAAGTC CATGGGTGCC TGGTAGGAGA CAGGGGGATG AATGTGAACC  
51 CCTGCATGGC TATAGCCACC TGCCTCCTCC CCTGCCCTGC ATCACTACCT  
101 GGCTATTTT TTGCTCTAG AAGCACTGCT TCCTATGCTC CTTAGGACCA  
151 CTGCCCCGAT ATGACAGATA AGAACATCGA GGCTAAGGCA ACGCAAATCT  
201 TTTCTTAAA GTCATACAGC TGTCAAAAGA AAGCTGGACA ACCTGGGCAA  
251 CATAGCGAGA TAAAAAATTA TTTAAATTAG CCAGATGTGG TAGCCCCCTG  
301 TAGTCTCAGC GACTCAGGAG GCTGAGGCAG GAGGCTCACC AGAGTGCAGA  
351 GTTCAAGGAT GCAGTGAGCT ATGATCCTGC CACTGCACTG AAAGCTGGGT  
401 GACAGAGCAA GACCTGGCT CTAATAAATG AATACATAAA GTCTCACAGC  
451 TAGTGGTAGC TAATCCTGCC AGAGTCAGGC CTCTACCTGT CTGATGACAA  
501 ATGGCACACT ATGTCTTTTA ACCTGATTGC AGACCACAAA TGTTTTGTGA  
551 ATATTTTCCC CAGGGAAAAA ACCGGAAGTA GTTCTAAATT CTATACATCC  
601 ATTATATTAG TTTTACCTGT GGATTGGGAA AACCAGCTC TGATTGCATT  
651 TCAGGGCGGG ACAGCCTTTG GTGCACTGTC TGGCGGGATT TTCCATTTTA  
701 ACCTCCTTCT AGAAGCGCCT TCTCATGGTA AAGTTCTCTA TGCCGCCAGG  
751 AGCGCCGAGG AGAGGGCAGG GGGCTGGAGA CGCCCCGAG AGGGCTACGT  
801 GCCTGTCTGG ACAGAGGTCT CCTGCCTCCT CGGCGGCGCC AGCCACCTC  
851 CCACAACCCC TGCGGGAGAA GCCCCCAAGG GGAGGAGACG GGCTGGGCC  
901 CTGCCCCGAG CACCTTCCGT CTCTAGGTCG GAGTCTGAAT CGGCCTTGGG  
951 ACCCTGCTTG GCTTCGGGGA CCCCTGCAAG ACGTCCACAG GCCGCCGTG  
1001 CCTCTTCTCT CTGCTTTTTA TCCTCCCCAG ACCTCTGGCA GGAACCGCTC  
1051 ATCGTTACGC CCCTTTCGCA GCCTCAGACC CTGAGGCGGA GACCGCTTGG  
1101 CGCTCCTCTT AGAGCGCGAC CCGGGGATGT GGGCGGAGTC TGCGGCTGCG  
1151 CTGACCAATC GAGTGTGGCG TCCATCGACT GCGCTCTGCC ACGGCAATTA  
1201 GCGACGCGCT CCCC CGCGG GGTGCGCCCG GCAACCCAGT GCTGTAGGTT  
1251 GCCGTAGAAA CCGTGGCTCT CCTGCGCTGA GGCTCCTCGC CTGAGAGGAT  
1301 AAACCTCAGC CGCCACGGGC TATGCACTGG GCTGGGCGCC TTGTGGGCAT  
1351 CCTCCCTGCC TTCCTAGGGG GTTCCAGCAT CGCCCCCTT TCGTGGACTG  
1401 GGAACACGCG CTGACTCCAG GACTTGTGTT GTCTCACTG CACTGGGGAA  
1451 GGTGGCGGGG GCAGCTTTTC AGGAGGGCCT GGGGAACCTC GCAGAGCCAG  
1501 GTCAACCTCT CACTCTGTGC CTCTTAGTTA TCTTGATGTC TCTGGTCTTT  
1551 GCATACGCTG CTCCTGTCAC CAGGAACCTC CATCCCCATC TTTGTCTGCT  
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1651 GAAGCTTTCC TCAACACCCT CCCC CGCCTG CTGTGCTGCT CCTCAGGCCC  
1701 TCCTCTCACA GCACTGATAA CAGCTGTCCG TCTCCACCCT CCACACCT  
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2001 TGCTGACTCA TGTGCCCGCA GCTAGCAGGA GCTGCGAGCA TGGGCTCCCC  
2051 AGGGGCTACG ACAGGCTGGG GGCTTCTGGA TTATAAGACG GAGAAGTATG  
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2151 GGGATCGTGG TCTATGTGGT AGGGTAAGAG AGAAGAGCTT TTGGCCAGGC  
2201 TGGAGGGGCA AGGGAAGAGG TGGGGGGTGG GGCTTGGTCC TGCTGGGTTG  
2251 AAGTTGAGGG TTGGGCTGTT TAGGGGCTGG AGTGGAAGGG GGCAGATTGG  
2301 GACGGGGTTG GCGAGAGCTA GCGATACAA GACAGGAGAG CAAGAACAAG  
2351 CTGTGTGTTT GTCCTGTGTG TCCACTTGCC TCCTTCCCAG GCCCCACCC  
2401 AGGCCCCACC CAGGGGGCAC ATGACATAGT CCTTAACATC TGTGAGAGCT  
2451 GGAGCACTAG GCCCCAGAG AGACCACCAG CTGTATCTCG GGTGAGGAGA  
2501 GTCTGTAAGG GGGAAAGCTG ATCTAGTCAG GCTGGGGGTG GGTGCTGGCT  
2551 AGTGAAGGTG ATTGTCTGAG GGCATTGGCT CTCTGATGCA TGGCTGGAGC  
2601 TTCTGTCTCA TTCAGGGGGT CTGGAGTGGG AAGTGGGGCC AGAGAGGAGG  
2651 TGGGGCCTTC GATGTTGGGC CGGGAGCCTG TAGGGTGTGG GGGGAGAACT  
2701 GAGCATGTAG GGCTCAGCTC CGCCCTGTG ACTACACGCT GGGGACACAC  
2751 CACACTGCCC GACTTCTCCT CCCCAGGTGG GCTCTCCTCG CCAAAAAGG  
2801 CTACCAGGAG CGGGACCTGG AACCACAGTT TTCCATCATC ACCAACTCA  
2851 AAGGGGTTTC TGTCACTCAG ATCAAGGAGC TTGGAACCG GCTGTGGGAT  
2901 GTGGCGGACT CGTGAAGCC ACCTCAGTG GGGGCCCTGA TGTGCTGAC  
2951 GGGGGCGCAA GTCCTTTCCC CACTGACAGC CTGAACACCC GCCATGCAGC  
3001 CAGTGTGTGC GAGAGAGAAG CATGTGATGC CAGAGACGGC TCGGGTTCT  
3051 CAGGAAGGGC TTCACAGAGG AGTGGCACCT GGACAGGACT TTCAGGGATG  
3101 TGTAGGAGGT TTTGGGTTGG AAAAAGGGGC CACTCAAGAA GCCAGGCCAG  
3151 GGTGGACGT GCTGGCTCAC GCCTGTAATC CCAGCACTTT GGGAGGCCGA  
3201 GGCAGGTGGA TCACGAGATT GAGAGTATCC TGGCTAACAC GGTGAAACCC  
3251 CATCTCTATT AAAAATACAA AAAATTAGCC GGGCATGGTG GTGGGCGCCT  
3301 GTAGTCCAG CTACTCGGGA GGCTGGGGCA GGAGAATGGC ATGAACCCGG  
3351 GAGGTGGAGC TTGCAGTGAG CCGAGATTGC ACCACTGCAC TCCAGCCTGG  
3401 GTGGCAAAGC GAGACTCTGT CTCAAAAAAA AAAAAAAA GCCAGGCCAG  
3451 AGAAACTGCA TTTCCAAGA CTGCCAACAG AAAAGAAGGG AGTGTCCAGG

FIGURE 3A

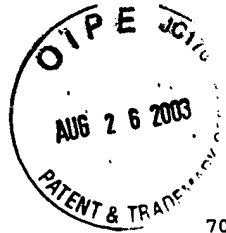
017-5376  
AUG 26 2003  
PATENT & TRADEMARK

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3501 ACTAATGGCT TGAGCTTGAG AGTGGTGTGA GGTGCTGGGG CATGGAACCTT
3551 CCCTGTAGCC CTGCTCCCTG ACCTGGGGCA CTACGGTCAG GTGCTGCTCC
3601 TCCCCCTCTTC TCGGCTGCGT TTTCTCCTC CCTCCACCCA GCTCATCCCC
3651 AGCCTCAACT GCCACTTCTG CTCCTCTGAT GCCAGGGTG TATTTCCAGT
3701 GATCACTGCG CCAGAGCACA GCTGTCTTCT AGGTGCACAC CCACATGTCC
3751 AAAGATCAAT TATTTTCCTC TCCTGGCATG GCCTCTGTGA CGCCCACTAG
3801 TCATGGTGGC TGTGACATCC ACTAGTGCCT CAGCCAGACC CGTGACTCAC
3851 CCTGGACCCC TTCTGTCTCC TTCCAAGATT TTTCACCACT ACCCATGCCA
3901 TGCCATGCGT GAGACTATGG CCTCTAGAG GGTCCCTAGA TGCCCTCTC
3951 GCCTCCTCCC TTA CTGCTCG GTGCACACCA CGCAGCAGCC AAGCTGAAC
4001 TTCACACCAG GCATCATGAG AGCCTGCAGC GCCTGCTTCT ACCCTCAGGA
4051 ATTCCCCCAA CCCTGCCCCAT GACGGTGTCC AACTTTTCTT CCCAATCCTA
4101 ATGGCTGCCA CTCCCAGCAC CATCTGGCCA GCCCTCACCT TCCCTTCCTG
4151 GGCATACATT CCCCAAATTC ACAGTGCTCT CACGAGCAGC ACTGGAGGGT
4201 CAGCCTTTCT TTCCAATGTC CTCGGCCACC CGTTGACCAC AGACACAGCT
4251 TTCCCTCTTC TCCCTTGGCC CCTGCCATGC CAGTGCTGCT GTGTGTGAGA
4301 TGGGAGACTC ACCTCGTCTC CATCTGAGC AGGTGCTGGG CCCAGCTCTC
4351 CCTTGGATCT TCAGTACTAG AAGCAGCAGG CTGTTGGAAT ATTCTGGTTG
4401 GAGCCAGGCA TGGTAGCTGG AGCCTGTAGT CCCAGTACT TGGGAGGCTG
4451 AGGCAGGAGG ACCTCTTGAG TCCAGGAGTT AGAGGTTGCA GTGAGCACTG
4501 ATCACAAACAC TACACTCCAG CCTGGGTGAC GAAGTGTAAT CCTGTCTCTA
4551 AATACACACA TACACATGCA CACACACACA CAAATTTTGG TTGAGACAAG
4601 AGACTTGTCT CAAGAGATGG ACATGGGCAC AAGGCTTCTT GGTCTCAAAA
4651 ATGGCCAGAA CCACTGCCAG CCTCCCATCT CTGCTTCAGT CTGCCTTACA
4701 GGGGGACAGG GTTAATGACT TGATGGGGCC AACATCCCTT CCTCATATAA
4751 CCAGGCTGCC GGCTTCCGGC CTTTCCAGTC AACACGAGCC CAGCCAGGCC
4801 AACCTTGTCT TTTGCCCTCT AGGGAGAGAA CGTGTCTTTC TTGGTGACCA
4851 ACTTCTTGTG GACGCCAGCC CAAGTTCAGG GCAGATGCCC AGAGGTGAGT
4901 TTACCAGGA TCCTCCAGC GGGTCCCTTG TTCCTCCATC AGCCCCAGGT
4951 GGCCACCCGT GTTTCCTTTT CCCCTTCCCA GGTGGCTGAA GGCTCAGCCT
5001 GTGCTCGGTC TCCCCCAGGC ACTGGGCTAC ATCTTTTCTT GAATCATTAT
5051 GTTCAGTCTT CACATATCCC CTGCCTGGTA GGAAGTCCTG TGATCCCCAT
5101 TTCAGAGGAG AAGACTGAGG CTCAGTGAGG TTGAGTCACT TTCTTAAGGC
5151 CTCCAGGCCT GTGGGTGACA GGACCCCGAG CTCTGGGCAG CAGCAGTTCC
5201 CATGAGGTG CTAGGCCCTC CCATCTGGT CCTGCCTCTG GGTACTCTCC
5251 AGGTTGGTAG TGTGACACCC AGAGCTGCGC ACATGCTCAG GGAGGTTCTA
5301 ATAGCAAGAG CCAAGCTGGA ATATCACCTC CCCTGTCTG TGCCCAGCCT
5351 CTATTAATAT GTCTGAGGC AGCTTTCATC TTTGTGGGCC AACACAGCAC
5401 ACTCTTGTAG ATGGTGAATT CAGGATTGCT TATGATTTCT GGATAGTTT
5451 TTTTGTTTTA TTTTGTAGAC GGAGTTTCAC TCTGTACCC ACCTGGAGT
5501 GCAGTGGCAG ATATCAGCTC ACTGCAAGCT CTGCCTCTCA GGTTCACGCC
5551 ATTCTCTGCT CTCAGCCTCC GGAGTAGCTG TACTACAGG CGCCTGCCAC
5601 CAGCCGAGC TAATTTTCTT TTTTCTTGT ATTTTATAGT GAGACGGGGT
5651 TTCACGGTGT TAGCCAGGAT GGTCTCCATC TCCTGACCTC ATGATCCACC
5701 TGCCTCGGCC TCCCAAAGTG CTGGGATTAC AGGCGTGAGC CACCACGCCC
5751 GGCCTGATT CTGGATAGTT TTTACATCAA CCGTGGTCAA GCCAGAGTCC
5801 CCCACCTTGT TCTTCTTCAT TTCTGATCCA GAAATGCTGA TTCTCCCTCT
5851 GACATTTTCA CTTTTCCCTT TGCTGGGGA TGTCCCTGGG ATCTGCTATC
5901 TGTACAGAG CATGCTCATT CTCTCCAGCT GTGAATTTTG TTTGAACTAT
5951 TGGGACTCAG GACATAGTCC TGAAGATTTA CCTCCACAGT GACATCTTTA
6001 GGCAAGTCCA ACATTTACGT GCCTCCTGGG CTGGAGGGTC GTTGTGCAGA
6051 CAGCTGTCCC CTGAGCCCTG GTGGCTGGTC CTAGCACAGT TGCTGGAGAC
6101 ATCCCATGTC CGTAGTTGGA AATATGCACA AAGGATTGCT TACTCTTTTT
6151 GTTTGTTTGT TTTTGTGAGA TGGAGTCTTG CTCTGTGCC CAAGGCTGGA
6201 GTTCAATGGC ACGATCTCGG CTCACTGCAA CCTCCGCTC CTGGGTTCAA
6251 GCAGTTCTCC TGTCAACCCC CTGAGTAGCT GGGATTACAG GTGCCCGCCA
6301 CTGTGCCCAG CTAATTTTGT TATTTTAAGT AGAGACGGGG TTTCACCATG
6351 TTGGCCAGGC TGGTCTCGAA CTCCTGGCCT CAGGTGACCC ACCAGCCTCG
6401 GCCTCTCAAA GTGCTGGGAT TACAGGCGTG AGCCTGCCGA GAGCTTGGTC
6451 GGGGAGACCT GAACCCAGCG GTGCTAAAGG AATTAAAGAC AAACACACAT
6501 AAATATAGAG GTGTGGAGTG GGAAATCAGG GGTATCACAG CCTTCAGAGC
6551 TGACAGCCTC GAACAGATTT ACCCACATAT TTATTGACAG CAAGCCAGTG
6601 ATAAGCATTG TTTCTACCAG ATTATAGATT AACTAAAAGT ATTCCTTATG
6651 GGAACAAGAG GAGTGGGCTC TGGTTGGTTA TCTGCAGCAG GAGCATGTCC
6701 TTAAATCACA GATCGCTCAT GCTATTGTTT GTGGTTTAAG AACGCCTTTA
6751 AGCGGTTTTT CGCCCTGGGT GGGCCAGGTT TTCCTTGCCC TCATTCCGGT
6801 AAACCCACAA ACTTCCAGTG TGGGTGTCGT GGCTATCACA AACATGTCAC
6851 AGTGCTGCGA AGATTTGTT TATGGCCAGA TTTTGGGGGC CTCTTCCCAA
6901 CATGAGCCAC TGTGCTTGGC AGGATGTGCT TACTCTTGGT GAACCCACAC
6951 AATGTCCTTC TCTTCTTAA TGCTCAGATG TGCATTTAGT GTTCAGTTTG
```

FIGURE 3B



Docket No. CL001202  
Application Serial No. 09/820,095  
Inventors: Ming-Hui WEI et al.

Title: ISOLATED HUMAN G-PROTEIN COUPLED RECEPTORS...

```
7001 TAGACCGTTC TGAAATTTGG CTGGATCTGT GGGTCTGTGT TTTTCAGAAT
7051 CTGTGCAATT CCTCTTTGTC TGCAACCACA CTTCTGGCTC TTCCCATGAA
7101 ACGTCAGGGC TGGGTCGTAA TTATCAGATC TGACAACCTG GCTTTCCCGG
7151 AAGACCAGAG TTCTGCCAGC TCCTCTAGGG ATCCTGGTGC CTGATCCCTC
7201 CCTTACATGC ACCATGCTCT TTATAGTGTC ACCTCCCTCA GCAGACACCG
7251 CTGAGCTGCC CCGCTGGGCC AGGGGGCTAG CTAGGCTAAA TTCACAAAAC
7301 TCCATCTCCC ATACTTCAAA GACCACCCAC ATGGACAGCC CAGCCCAGGT
7351 GGCAGGTCCG ATGATGGGAC AGAGGCTGTA GGTGGGGGAC CTAGGGCTGC
7401 ACTTGAGCAG AATCTTTTTT TTTTCTTTCT TTTTCTTTT TTTGAGACAG
7451 AGTCTCGCTC TGTCACCCAG GCTGGAGTGC AGTGGCGTGA TCTCGGCTCA
7501 CTGCACACCT CCACCTCCTT GGTTCGAAGC ATTCTCCTGC CTCAGCCTCC
7551 CAAGTAGGTG GGACTACAGG CACACACCAC CACACTCGGC TAATTTTTGT
7601 ATTTTTAATA GAGACAGGGT TTTGCTGTGT CGGCCAGGCT GGTCTCGAAC
7651 TCCTGACCTC AGGTAATCCG CCCACCTTGG CTTCTCAAAG TGTGGGATT
7701 ACAGGTGTGC CAGGCCAAGC AGAATCTTAA AAAAAGGTGG GGAGAAGCTG
7751 GTGAGCAGGT GGATTTGGTT GAAGCAGGAT GTCGACACAG AGGGGGCTTG
7801 GTGGGTAAAG GCCCTGAGCT GTGTGAGGTG AGGTGCCTTT AGGGCTACCT
7851 GCCACTGGGT GGAGCTGAAG TGAAGATTG GACTGGGGTG GGAAGAAGGT
7901 AGTTCAAGAT TTACAGGGCC CCTGTAAGCC CCACCTAAGGA GCTAAACTGT
7951 TTTTGTTTGT TTGTTTTCTT TTTCTCTTTT CTTTTTTTTT CTGTAGCAAT
8001 GAGGTCTTGC TTTGTGCCCC AGGCTGGTCT CGAACTCCTG AGCTCAGGCA
8051 ATCCGCCTAC TTTGGACTCT CAAAGTGCTA GGATTACAGG CGTGAGCCAC
8101 TGTGCCTGGC AGGAGCTAAA CTTGATTAGA GGAACAGAAG AGAGCCACAC
8151 GTGGGCTCAG AGGCAGGGTG CTCAGTTTCC TGCACATTGG GATGCACCAC
8201 TTGGGCTGCT GGGCATAGGT GGATGAGGGT ATGGGAAGAC GTGGGGGCCC
8251 CACTGGTGGT CACTGTGGGG TCTAGTTGGA GGAGACGGTA GCCCAGCTGG
8301 GGTGAAGAG AGGAGCAGAC ACAGGACATA GGTAGGGACA AAGAAGCAGA
8351 GCATGTGGCT CTGCTCCGAC CTCCACCCAA TCACGACGGC CCTGTCTTTC
8401 AGAAAGTCCC ACCGCCTCAT TCTGGCTTCT CAGAGGCCCT CAGCCTTCTC
8451 TGCGCCCTG GTGCTGGTGT TCTTCCTGCT GCCCTGAGC TGAGTGCCCT
8501 GGGCAGCAGT GTCCATCCTC AGTTGGGGCA GGACCATGCC TGGGAGAGTG
8551 CCCGATGCTC AAGGGTGCCT TCGTCTCTGG GGTCTGGGAC CCCAGAAAGC
8601 TCACCTGTCC TCCCTTCTG CCAGAGCCCC ATAGTCCCCT GCCTCTGTGC
8651 AGGCATTAAAT GTCCCCAGGT TACAGAAGAG CGAGCAGGAA GGAGTAGCCT
8701 GTGGTCCCTC AGTCAAGGGT TGGGTCTCTG CTTCAATACC CAAGCCCCTG
8751 ACTCTAGGGC CCTGATCTTT GTCTAGCTATG TCCCCATGCC GGGCATCAAA
8801 AACTCACCTC CCCAAGGTAT CTTACCTTTC CCTGATCTGT CATCCAAATT
8851 GGACCAGAGG AGCTAGACCT GGAAGAATCA CTTCCGCATC CACCAGGGAC
8901 AGAAGTGTCA AGGAGGAAGG GGCAGGGTGC GTTGTCTCAC CCCTGTAATC
8951 CCAGCACTCT GGGAGGCTGA GACAGAAGGA TTGCTTGAGG CCAGGAGTTA
9001 AAAAACCAGC TGGTCAACAT AGCAAGACTC CATCTCTACA AAAAAAAAT
9051 ATTAAAAAAT CAGCCAGGCA CAGTGGTGTG TGTCTGTAGT CCCAGCTACT
9101 GGAATACTG AGTGAGAGG ATTGCTTAAG CCCGGGAGGG CGAGGCTGTA
9151 GTGAGCCATG ATCATAACCAC TGCACTAGAG CCTGGACAAC AGAGTGAGAC
9201 CGAATCACTA AAAATAAATT TTTTGAAAAA GGAGGAAAGG GGTCTCCCTT
9251 TGTCTTTGAA ATACAGTACT GTACCTTCAT CTGGCCAGGG CATGTCTCCG
9301 CTCCTCTCTC TGACCACTC CTTTTATTTG CACCTCCAG CTTTCTGTG
9351 TGGCCCCACA CTCAGGGTAC TCTGGCGGCG GGGTGGTGAG GTTGTTTAAG
9401 GTGGGAAGGG GGCCTGTCTT TCCCACCTTG AACCTCCCTG CCTTGAGAC
9451 TGGGCTGTGG AGGGGAGACA TCCCCTGTGC CATTGGTGAC TGCTCTCTCT
9501 CCCACCTCAG CACCCGTCCG TCCCCTGAGC TAACCTGTGG GTCGACGAGG
9551 ACTGCCCCGA AGGGGAGGGA GGCACACACA GCCACGGTAA CTGTGGGCTC
9601 TGTCTTCCAG TGCCCCTAGC AGGGTGGGGG CCGGGCTGGG ATCCTGGGTG
9651 GCTCCTGAGT GCAGGCCCTG CTCGCCTCTG TCCCTGCATC TCTCTTTCTG
9701 CCAACAACCC CTTGGCTGAA GGCCTCCCCA GGCCTGCAGA GATTGAAGG
9751 TCTGGAGTTC ATCTTTTGTG TTCTAGGTGT AAAAACAGGC CAGTGTGTGG
9801 TGTTCATGG GACCCACAGG ACCTGTGAGA TCTGGAGTTG GTGCCCCGTG
9851 GAGAGTGGCG TTGTGCCCTC GTAAGTGTCC CCACAATCCC CTACCCCAAC
9901 TGGCGCAGGG CCCCAGGCTT GGCAGAGGCT GTCACCTCCC TTCCACCTGC
9951 AGGAGGCCCC TGCTGGCCCA GGCCCAAGAC TTCACACTGT TCATCAAAAA
10001 CACAGTCACC TTCAGCAAGT TCAACTTCTC TAAGTAAGCA GAGTGGGTCT
10051 CATCTGCCCC AAGACCTTCC TTGTCCCTTA CCTCATCTGA CCTTTCCAC
10101 TCCTCCAGG TCCAATGCCT TGGAGACCTG GGACCCACCC TATTTTAAGC
10151 ACTGCCGCTA TGAACCACAA TTCAGCCCTT ACTGTCCCGT GTTCCGCATT
10201 GGGGACCTCG TGGCCAAGGC TGGAGGGACC TTCGAGGACC TGGCGTTGCT
10251 GGTGGGTCCC AAGTTGGGGG CAGGGTTCCT AGAGGGCTCT GGGAGAGGGT
10301 CCGGGGCCCA CCCACGGGTG GAAAAGCTAT GTGCTATGTG CAGGGTGGCT
10351 CTGTAGGCAT CAGAGTTCAC TGGGATTGTG ACCTGGACAC CGGGGACTCT
10401 GGCTGCTGGC CTCACTACTC CTTCCAGCTG CAGGAGAAGA GCTACAACCT
10451 CAGGTGAGGC CCCACTGTCT CCAGTGCCCA GCTGTCTGGC CCATCGCCCT
```

FIGURE 3C

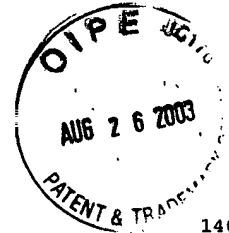
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10501 CTCACTGTGG CGGCCAGGAC AGACCACACC CAGGCCCAGG CCTCTAGATA
10551 TTCCACTACG TGTGCAAGGG GGTCCCAGGA GCAGGAGAGA GCTGTTCTCA
10601 ACCCCACATC CTCACGACACA GGCTCCGTCC TGCTGCCCCA AGTCCTGAGC
10651 CCTCCACCCC ATCTGTCCCA GGCCCTGCC CAGCTCAGGC TCCTCACTGC
10701 CAGCCCTTCC TCCACCCAC CTCGCTTCTA GTATCTCCCC TCCACAGCAA
10751 TGGGGTGTTC CATTTTACT TTCCCTTCT CCCCTCAGC TTTGTTTTTT
10801 TTTTTTAAAG ACAGAACTCT ATTCTGTAC CCAGGCTGGA GTGCAGTGGC
10851 CCGACCTCGG CTCACTGTAA CCTCTGCTTC CTGGGTTCAA CCGATTCTCC
10901 TTCCTCAGCC TCCTGAGTAG CTGGAATTAC AGGTGCTCGC CACTACTCCC
10951 AGCTAATTTT TATATTTGG TAGATAGAGA TGGGTTTTCA CAATGTTGGC
11001 CAGGCTGGTC TCAAACCCCT GACCTCAGGT GATCCACCCA CCTCAGCCTC
11051 CCGAAGGGCT AGGATTACAG ACGTAAACCA CCATGCTGCG CCTCCCTTCC
11101 GCTTTTACCT AAACTTTTTT TTTTTTTTTG AGATGGAGTC TCACTCTGTC
11151 GCCCAGGCTG GAGTACAGTG GCGGATCTC AGCTCACTGC AAGTTCGCT
11201 TCCCGTGTTC ACGCCATTCT CCTGCTCAG CCTCCCAAGT AGCTGGGACT
11251 ACGGGTGCAC GCCTCCACGC CCGGTAATT TTTGCATTTT TAGTAGAGAC
11301 AGGGTTTCAC CATGTTGGCC AGGATGGTCT CGATCTCTTG ACCTCGTGAT
11351 CCACCTGCCT CAGCCTCCCA TAGTGCTGGG ATTACAGGCG TGAGCCACCA
11401 CCCCCGACCT TTTTTTTTGA AACGGAGTTT TCACCTTCTT GTAGTCCAGG
11451 CTGGAATGCA ATGGCGTGGT CTTGGCTCAC TGCAACCTCT GCCTCCTGGG
11501 TTCAGGTGAT TTTCCAGCCT CTGCCTCCAG AGTAGCTGGG ATGACAGGTG
11551 TGCACCACCA CACCCAACTA ATTTTGTAT TTTTAGTAGA GATGGTGTTC
11601 TGCCATGTTG GCCAGGCTGG TCTCGAACTT CTGACCTCAG GTGATCTGCC
11651 CACTTCAGCC TCCCAAAGTG CTGGGATTAC AGGCATGAGC CACCAAGCCT
11701 GTTTTTTTTG TGTTTTTTTT TTTTTTTTTT TTAGATGAAG TTTTGCTCTT
11751 GTTGCCCGA CTGGAGTGCA GTGGCCCGAT CTCGGCTCAC TGCAATCTTT
11801 GCCTCTCGGG TCTCAAGCAAT TCTCTGCCT CAGCCTCCTG AGTAGCTGTG
11851 ATTACAGGTG CACACCACCA CACCCAGCTA ATTTTGTGT TTTTACTAGA
11901 GATGGGGTTT CACCATATTG GTCAGGCTGG TCTCGAACTC CTGACCTCAG
11951 GTGATCCACC TGCCTCAGCC TCCCAAAGTG CTGGGATTAC AGGTGTGAGC
12001 CACTGTGCCT GGCCTCAAGT TTCATAAATT GCATTTATTA TCATGTCTTT
12051 GAGTCTTCTA AGCAGATCTA TTGGATCCTT CTGCCACCGA GCGTCACCTC
12101 GTCATGCAGG CAGGCACACA CGACCACCAG GCCTGGGGAT GATGCCCCCTC
12151 AACATAGCTC ACTGCACCCC GTCTGATCTG GCTTCCCCAA CCTCCCCAGC
12201 CCTTCGAAAC CACGTGGGGC TGGCTCCCAAC CCACATCCTG TTCCCTGAC
12251 CTCTGTGCTG GCAAACCACC TGTGTGCATG TTCTTCAGG CCCAGCCTCA
12301 TGTCCCCTCC AGGAAGTCTA CCCCAGTTCC CAGGGAAGAG TGAGTTCCCA
12351 TCTCTGGAAT CCCTCAGCCC TGAGCCTGCC CCTTCACATC CCCCCTGCT
12401 GGTCTGTGTT GGGGACTCCT CTGTCCCCCG TCCTCTCAGC AGGCAGGGAA
12451 CTCTGAGGG ACAGGTCTTC GTTTGCTTTT TCTGTTTTCT CACCAATTAC
12501 ATAGGGCTGA GACCCAGGAC TCAGGCTTGG GCTGGGGGT TATAGAGTCA
12551 ATTGACAAGT TGGACAGAGG TCTGGCAGGG CCAGCCCCAC CTGGGGGTGG
12601 GCAAAGCAGG TCACCAGAGC CTTCTTTCCT GCCCACAGGA CAGCCACTCA
12651 CTGGTGGGAG CAACCGGGTG TGGAGGCCCC CACCCTGCTC AAGCTCTATG
12701 GAATCCGCTT CGACATCCTC GTCACCGGGC AGGTAGGCAC AGGTAGGGGT
12751 CAGGCCGGGG ATGGGATGGG GCAGGCAGAC AGGGCTGGAG GAGGCATGAG
12801 GCTGACAGTG GTGGGCTGAG AGGTTAGCT CAGATCTCTC TCAGGCAGGG
12851 AAGTTCGGGC TCATCCCCAC GGCCGTCACA CTGGGCACCG GGGCAGCTTG
12901 GCTGGGCGTG GTGAGTGCGA GCACTGTGGG CACCTGCAGG CTGCAGTGAG
12951 TGCTGCTGAC CAGGGTGTGT CCAATGCATG CTGGAGCCTC CGGTGCCTGC
13001 ACATTGAGTC TCGGGGTGCA GGTGGGGAG GTGGCAGGAG AGCAGGCTCG
13051 GGGGCTGGAA CATGGGTTGG CCCTGCCTCT CCCAGGTCAC CTTTTTCTGT
13101 GACCTGCTAC TGCTGTATGT GGATAGAGAA GCCCATTTCT ACTGGAGGAC
13151 AAAGTATGAG GAGGTGAGCT GAGGTCGCTC TGCTTGGACC CTGGGTTCTG
13201 CCACACTTAG GAAGATGTTG GCTGGATCCC TGACCTGCTG TCCTCATCTG
13251 CAGGCCAAGG CCCCAGAAAGC AACCGCCAAC TCTGTGTGGA GGGAGCTGGC
13301 CCTTGCATCC CAAGCCCGAC TGGCCGAGTG CCTCAGACGG AGCTCAGCAC
13351 CTGCACCCAC GGCCACTGCT GCTGGGAGTC AGACACAGAC ACCAGGATGG
13401 CCTGTTCCAA GTTCTGACAC CCACTTGCCA ACCCATTCGG GGAGCTGTGA
13451 GCCGTTCCCT GCTGGTTGAG AGTTGGGGGC TGGGAAGGGC GGGGCCCTGC
13501 CTGGGGATCT CAAGGATGAG GCCCCAGCAT GGAGGATTGG GGGTAGAATT
13551 CCACCCTTGA ACCCCAGCAG ACAGTCCCTC CCCTGACTCC CACCTTGGTA
13601 GGGTGCTGCC TCAGGGAGCC ATAGAAGTCG GCTGTGTTTT GAGACGGCGA
13651 CAGAACCTGA CCCGTGGAGA CTGGGAGAGC CCAGCAGGCA CCTGTATTGC
13701 AGGGCTCCGA CTGACGTGG CAGGGCTCC TGCTGCGTCT GGGCCTGGAG
13751 GTCTCTCTCC CAGTGCTCTG TCCCCAGTGT TCCTAGCAGA GGTATGCTTA
13801 CCAGCTGTCA GCACAGACCC TCCTGCTGCC TGGGTCCTGG CCTCCTCCC
13851 CCATCTGCAC CCCCATCATA GGTAGAGACC CCACCTCCC ATCGGTCCTA
13901 CATGGGGCTG TGCAGCTGGA GCCAAAAGG CAAGGTAGAA AGAGGAGTGA
13951 TGGGGGAGGG GGATTGTTTC AGCTTCTCTG GTGCTGTGAT GCCCCAGGAG

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FIGURE 3D





Docket No. CL001202  
Application Serial No. 09/820,095  
Inventors: Ming-Hui WEI et al.  
Title: ISOLATED HUMAN G-PROTEIN COUPLED RECEPTORS...

14001 AGTCCTAATC TAGGGAATGG GGTGGAGTAG GCAGATAATC CACCTCCCTA  
14051 TCCCCCAGGC AAGGGCGGAG CATGTGTCTT GGGCCACAC CTGCTTAGTT  
14101 TATGAGGACC GGTGCTTTC CAGTGGTAGC CCTTTTGCCA TGGAGGTCTG  
14151 GGAGAGAGAG CAGAGGGCGG CAGGGCTAAG TTGGTGATCA TTGGGTCTT  
14201 CAGGACCTTC TATATCCCTC CTCGGTAACC CCCCAGCCCA ACCCTTGGA  
14251 ATCTTTCCCTC CAGGCTTCCT GAGAGCCCTG GGGGTGGGAG GCTGTGGGAG  
14301 GCTGTACATC TGAAATTCAC TTCAGTCCAA GTCATACCTA GGAAGCTGTC  
14351 TGGGCAGCTG CTCGAGGGAG GCCCTGGCTC TGATCCCAGG CTGGATGGAG  
14401 TGGCTGGAAG GAATGGTTCC AAACAACACC ACCGAGATCT CCCTCAGGCT  
14451 GGCCAGGTTT TGCAGCTGGA ATTCTCCTCT TGGTCCCAGG GCGGGGCAGG  
14501 GAATTCTAAG TGTCCACCCC AGGGAGGCAA GGGGCTGCTT TCCACTGTGG  
14551 GTACCTGGTG ATCAGGGCAA GCTGTGGAGG GCCAGGGGTG GGGCTGAGAC  
14601 TGGGCTGACA TCTAGAATCA CCTGCCACCT GGAGCCTCAG TAAATGCCT  
14651 GGGGTCCCTG CTGCCTCTCA ATCTCCAGAG CCATGTCCAT GGGGAGGTGG  
14701 GCTCTGAAGT GCGAAGGTGG GAGAGCAGGG CCCCTGAGGC CTGGGTATCC  
14751 AAGGAGGGGC ACGTGCACCT GATTCTCCTT GGGGCCCAGA GGAAGCTGAT  
14801 GTCATGGCTG GACAAAGTCA CGGAGTAAAG CCAGCAAAGC CACCTCTTC  
14851 CTGTGTAGTC CTTACAGGCA TGA CTGGAAA GTTGGGGGGC ATCTATGGTA  
14901 GACATGGCAC AGCCTGAAG AGACCAGTGG GGTGGTGACG GGTGGACTTG  
14951 GGGACCCTAC CCCTGAAGAC TGAGGCCCTG CAGCTACCAG GTGGGCTAGA  
15001 AGGTAACCTG AACAGGCCCTG GGCACCTGTG CACCCATGTA GGAGCATGAG  
15051 GGCCACACTC TTTTCACCTC AAAGCCCTTG AAGAGTGGGC AAAGACAGCA  
15101 AGAGAGCTGC AGCCTGGGCC CGAGCTCAGA AACAGCTGTC GCCTCAGTCT  
15151 GCGCACAGGC ATGCACCCCA GGGTAGTGCC TGCAGGGATG CATGTGTCCC  
15201 CGTGGGGGTG CTTGTGCCAG GCAGGCCTCA GGTGCATGCC ATGCTCAGAA  
15251 CCCTGCTGCC CTTTCTAGGC AGCCTCCTTG GGGCCCAAGC TCTGCTCCCT  
15301 GGATCTGGCA CTTAGCAGAC GTGGGGAGCC TGACCCCATG CCTGTCATGG  
15351 AACCTCCTT GCCTGGTGTG TGTGGCTCCC CTCTTCACTG GGCACCTGGA  
15401 TCCAGGCCCA CTTGTGTCCC TGA CTAGGG GGTGCCAGG ACTGGCACCT  
15451 ACTCTTTAGA GAGCCCCAGC ATCTTTGATG TGGATTGGAG ACAATTGCCT  
15501 GGTTCCTTGG GGCAGGTGAA GACTTGGTGC CACAAAGAAT GCCACAGTGG  
15551 ATACGCCAGC AGGCCACATG GCTGGCCAAG CAATTATTAT TATGGATCCC  
15601 TTGGGCTGTG GGCCTTCCCA TCCACCCAC CACAACTGCC CAGGTAGCTG  
15651 GAGCTGATCA TAAACAAGAA GGCTCTGGGC AGAGTCCATG GCACCAGCAC  
15701 CAGCCAAGGC CCACTCCTGA AGACCCGAAG CCCAGCCCTT GGATGAAGGT  
15751 CTAAGGTCC TGAGGACTCC CCAGCCTGTG CAGGCCTGCA AAGCCAGGCT  
15801 GCCACAACA GAAGGGGCTC TCGGCTTGTC TGGCCTCTCT GGCCTCCCA  
15851 GCAGGTGTGG GAGGGCGGGG CAAGTGTGGG CTGATCAGCT ACTCCATATG  
15901 GCCAGGTGCC TGTGCTGGTG CCTGGCTGGG GGGCTGCATA GCCTGCACTG  
15951 TCTCCTCCAG GCTGCCCTG GGAATACCA CGTAGTGTGT GGAGTTCAGC  
16001 CCTGGCAGCT CCCGCTGGT CTCCTTGCTA TGCCGGATGC CATAGCCGAA  
16051 ATACACTGCA AGTCCTAGAC AGGGCAGGAG GCAGGGCATG AGCCTGAGGT  
16101 ACAGGTTCCA GCCCTTCTG TCCTCTTTCG CCTCCTCTG ACCCGGTCC  
16151 CAGCCTGGCC CCCACTCACC CATCAGCAGC CAGATGGAGA AGCGCACCCA  
16201 GGTACAGATAG CTAAGTTTCA GCATGAGGCA GATGTGAGG ACGATGCTCA  
16251 GGGCTGGAAT CAGGGGAACC ATGGGGATCT GAGGAGGCAG AGGCAGGGCA  
16301 GGGCTGGGCC GGGCTGCAGG AAAGATCTGC CAGCCAGGG CTCACCTTCT  
16351 CGGGAATCCA TAGAGCCTTT GTTCCTCACG GGAGATTGTG GAGACATGTG  
16401 CTCACTCAC ATGCAGAAAG GGGTGCGGGA TGGGTGTGTG GTCCTCCCC  
(SEQ ID NO: 3)

FEATURES:

Start: 2040  
Exon: 2040-2095  
Intron: 2096-2776  
Exon: 2777-2927  
Intron: 2928-4822  
Exon: 4823-4894  
Intron: 4895-9510  
Exon: 9511-9586  
Intron: 9587-9776  
Exon: 9777-9870  
Intron: 9871-9952  
Exon: 9953-10033  
Intron: 10034-10109  
Exon: 10110-10251  
Intron: 10252-10343  
Exon: 10344-10453  
Intron: 10454-12638  
Exon: 12639-12732

FIGURE 3E

AUG 26 2003

PATENT

Docket No. CL001202  
Application Serial No. 09/820,095  
Inventors: Ming-Hui WEI et al.  
Title: ISOLATED HUMAN G-PROTEIN COUPLED RECEPTORS...

Intron: 12733-12844  
Exon: 12845-12910  
Intron: 12911-13085  
Exon: 13086-13163  
Intron: 13164-13253  
Exon: 13254-13448  
Stop: 13449

SNPs:

DNA Position	Major	Minor	Domain	Protein Position	Major	Minor
136	C	T	Beyond ORF (5')			
253	T	C	Beyond ORF (5')			
573	C	T	Beyond ORF (5')			
2000	A	G	Beyond ORF (5')			
2222	G	C	Intron			
2783	G	T	Exon	21	A	A
3199	G	A	Intron			
3307	C	G	Intron			
5012	C	G	Intron			
6169	G	C	Intron			
7647	A	G	Intron			
8638	C	T	Intron			
9409	T	G	Intron			
10504	A	C	Intron			
10971	T	-	Intron			
12609	G	A	Intron			
13367	T	A	Exon	378	T	T
14191	T	C	Beyond ORF (3')			
14227	A	G	Beyond ORF (3')			
15027	T	C	Beyond ORF (3')			
15441	A	C	Beyond ORF (3')			

Context:

DNA  
Position

136 TCTCCAAGTCCATGGGTGCCTGGTAGGAGACAGGGGGATGAATGTGAACCCCTGCATGGC  
TATAGCCACCTGCCTCCTCCCTGCCTGCATCACTACCTGGCTATTTTTCCTCTAG  
AAGCACTGCTTCCTA  
[C, T]  
GCTCCTTAGGACCACTGCCCGCATATGACAGATAAGAACATCGAGGCTAAGGCAACGCAA  
ATCTTTTCTTAAAGTCATACAGCTGTCAAAGAAAGCTGGACAACCTGGGCAACATAGC  
GAGATAAAAAAATTATTTAAATTAGCCAGATGTGGTAGCCCCCTGTAGTCTCAGCGACTCA  
GGAGGCTGAGGCAGGAGGCTCACCAGAGTGCAGAGTTCAAGGATGCAGTGAGCTATGATC  
CTGCCACTGCACTGAAAGCTGGGTGACAGAGCAAGACCCTGGCTCTAATAAATGAATACA (SEQ ID NO:5)

253 TCTCCAAGTCCATGGGTGCCTGGTAGGAGACAGGGGGATGAATGTGAACCCCTGCATGGC  
TATAGCCACCTGCCTCCTCCCTGCCTGCATCACTACCTGGCTATTTTTCCTCTAG  
AAGCACTGCTTCCTATGCTCCTTAGGACCACTGCCCGCATATGACAGATAAGAACATCGA  
GGCTAAGGCAACGCAAATCTTTTCCTTAAAGTCATACAGCTGTCAAAGAAAGCTGGACA  
ACCTGGGCAACA  
[T, C]  
AGCGAGATAAAAAAATTATTTAAATTAGCCAGATGTGGTAGCCCCCTGTAGTCTCAGCGAC  
TCAGGAGGCTGAGGCAGGAGGCTCACCAGAGTGCAGAGTTCAAGGATGCAGTGAGCTATG  
ATCCTGCCACTGCACTGAAAGCTGGGTGACAGAGCAAGACCCTGGCTCTAATAAATGAAT  
ACATAAAGTCTCAGAGTAGTGGTAGCTAATCCTGCCAGAGTCAGGCCTCTACCTGTCTG  
ATGACAAATGGCACATATGTCTTTTAACTGATTGCAGACCACAAATGTTTGTGAATA (SEQ ID NO:6)

573 TAAATTAGCCAGATGTGGTAGCCCCCTGTAGTCTCAGCGACTCAGGAGGCTGAGGCAGGA  
GGCTCACCAGAGTGCAGAGTTCAAGGATGCAGTGAGCTATGATCCTGCCACTGCACTGAA  
AGCTGGGTGACAGAGCAAGACCCTGGCTCTAATAAATGAATACATAAAGTCTCAGAGTA  
GTGGTAGCTAATCCTGCCAGAGTCAGGCCTCTACCTGTCTGATGACAAATGGCACACTAT  
GTCTTTTAACTGATTGCAGACCACAAATGTTTGTGAATATTTTCCCGAGGAAAAAAC  
[C, T]

FIGURE 3F



Docket No. CL001202  
Application Serial No. 09/820,095  
Inventors: Ming-Hui WEI et al.  
Title: ISOLATED HUMAN G-PROTEIN COUPLED RECEPTORS...

GGAGTAGTTCTAAATTCATACATCCATTATATTAGTTTACCTGTGGATTGGGAAAC  
CCAGCTCTGATTGCATTTACAGGGCGGACAGCCTTTGGTGCATGTCTGGCGGGATTTC  
CATTTAACTCCTTCTAGAAGCGCTTCTCATGGTAAAGTTCCGTATGCCGCCAGGAGC  
GCCGAGGAGAGGGCAGGGGGCTGGAGACGCCCCGAGAGGGCTACGTGCCCTGCTGGACA  
GAGTCTCTGCTCCTCGGCGGCGCCAGCCACCTCCCAACAACCCCTGCGGGAGAAGCC (SEQ ID NO:7)

2000 CTCCTCTCACAGCACTGATAACAGCTGTCCGTCTCCACCCTCCCACCACCTCCACTCCCA  
CCCCAGGAAGTGAGGCCAGAGGGCAGGGACAGAGCTGCTGCTGTTCTCTGTGTGCCAGGG  
CCCAGCAAAGGGAATGTAGGGAGGGTGGGAGGTGCAGGGCAGCTGGGATTAGGGGTTAG  
GGCTGGGTGTTGGAGGCTGGATCTGGATCCTGCTTTAGTGGAAGTGTCCCTTTAACAGCA  
ACTGGCCTGGCCTGGCTCGGGCCCTGCTTTGCCCTCCTGTTTCAGCTGCGGCTGCAGCTGCC  
[A, G]  
TGCTGACTCATGTGCCCGCAGCTAGCAGGAGCTGGCAGCATGGGCTCCCCAGGGGCTACG  
ACAGGCTGGGGGCTTCTGGATTATAAGACGGAGAAGTATGTGATGACCAGGAAGTGGCGG  
GTGGGCGCCTGCAGAGGCTGCTGCAGTTTGGGATCGTGGTCTATGTGGTAGGGTAAGAG  
AGAAGAGCTTTTGGCCAGGCTGGAGGGGCAAGGAAGAGGTGGGGGTGGGGCTTGGTCC  
TGCTGGGTGAAGTTGAGGGTTGGGCTGTTTAGGGGCTGGAGTGAAGGGGCGAGATTGG (SEQ ID NO:8)

2222 AGTGTCCCTTTAACAGCAACTGGCCTGGCTCGGGCCCTGCTTTGCCTCCTGTTCA  
GCTGCGGCTGCAGCTGCCATGCTGACTCATGTGCCCGCAGCTAGCAGGAGCTGGCAGCAT  
GGGCTCCCCAGGGGCTACGACAGGCTGGGGGCTTCTGGATTATAAGACGGAGAAGTATGT  
GATGACCAGGAAGTGGCGGGTGGGCGCCTGCAGAGGCTGCTGCAGTTTGGGATCGTGGT  
CTATGTGGTAGGGTAAGAGAGAAGAGCTTTGGCCAGGCTGGAGGGGCAAGGAAGAGGT  
[G, C]  
GGGGGTGGGGCTTGGTCTGCTGGGTGAAGTTGAGGGTGGGGCTGTTTAGGGCTGGAG  
TGGAAGGGGGCAGATTGGGACGGGGTGGGGAGAGCTAGGCGATACAAGACAGGAGAGCA  
AGAACAAGCTGTGTGTTTGTCTGTGTGCCACTGCGCTCCTTCCAGGCCCCACCCAG  
GCCCCACCCAGGGGGCACATGACATAGTCTTAACATCTGTGAGAGCTGGAGCACTAGGC  
CCCCAGAGAGACCACAGCTGTATCTCGGGTCAGGAGAGTCTGTAAGGGGAAGCTGGAT (SEQ ID NO:9)

2783 GTATCTCGGGTCAGGAGAGTCTGTAAGGGGAAGCTGGATCTAGTCAGGCTGGGGGTGGG  
TGCTGGCTAGTGAAGGTGATTGTCTGAGGGCATTGGCTCTCTGATGCTGGCTGGAGCTT  
CTGTCTCATTCAGGGGCTGAGGTGGGAAGTGGGGCCAGAGAGGAGTGGGGCCTTCGA  
TGTTGGGCGGGAGCCTGTAGGGTGTGGGGGAGAACTGAGCATGTAGGGCTCAGCTCCG  
CCCCTGTCACTACAGCTGGGGACACACCACACTGCCCCACTTCTCCTCCCCAGGTGGGC  
[G, T]  
CTCCTCGCCAAAAAGGCTACCAGGAGCGGGACCTGGAACCCAGTTTCCATCATCACC  
AACTCAAAGGGGTTTCCGTCACTCAGATCAAGGAGCTTGGAAACCGGCTGTGGGATGTG  
GCCGACTTCTGTAAGCCACCTCAGGTGGGGGCCCTGATGTTGCTGACGGGGGCGCAAGTC  
CTTCCCCACTGACAGCCTGAACACCCGCCATGCAGCCAGTGTGTGCGAGAGAGAAGCAT  
GTGATGCCAGAGACGGCTGCGGGTCTCAGGAAGGGCTTCACAGAGGAGTGGCACCTGGA (SEQ ID NO:10)

3199 ATGTGGCCGACTTCGTGAAGCCACCTCAGGTGGGGGCCCTGATGTTGCTGACGGGGGCGC  
AAGTCTTTTCCCCACTGACAGCCTGAACACCCGCCATGCAGCCAGTGTGTGCGAGAGAGA  
AGCATGTGATGCCAGAGACGGCTGCGGGTCTCAGGAAGGGCTTCACAGAGGAGTGGCAC  
CTGGACAGGACTTTCAGGGATGTGTAGGAGGTTTGGGGTGGAAAAAGGGGCCACTCAAG  
AAGCCAGGCCAGGTTTGGACGTGCTGGCTCACGCCTGTAATCCAGCACTTTGGGAGGCC  
[G, A]  
AGGCAGGTGGATCACGAGATTGAGAGTATCCTGGCTAACACCGTGAAACCCCATCTCTAT  
TAAAAATACAAAAAATTAGCCGGGCATGGTGGTGGGGCGCTGTAGTCCAGCTACTCGGG  
AGGCTGGGGCAGGAGAATGGCATGAACCCGGGAGGTGGAGCTTGCAGTGAGCCGAGATTG  
CACCCTGCACTCCAGCCTGGGTGGCAAAGCGAGACTGTGTCTCAAAAAAAAAAAAAAA  
AGCCAGGCCAGAGAACTGCATTTCAAAGACTGCCAACAGAAAAGAGGAGTGTCCAG (SEQ ID NO:11)

3307 GTGCGAGAGAGAAGCATGTGATGCCAGAGACGGCTGCGGGTCTCAGGAAGGGCTTCACA  
GAGGAGTGGCACCTGGACAGGACTTTCAGGGATGTGTAGGAGGTTTGGGGTGGAAAAAG  
GGGCCACTCAAGAAGCCAGGCCAGGGTTGGACGTGCTGGCTCACGCCTGTAATCCAGCA  
CTTTGGGAGGCCGAGGCAAGTGGATCACGAGATTGAGAGTATCCTGGCTAACACGGGTGAA  
ACCCATCTCTATTAAAAATACAAAAAATTAGCCGGGCATGGTGGTGGGGCGCTGTAGTC  
[C, G]  
CAGCTACTCGGGAGGCTGGGGCAGGAGAATGGCATGAACCCGGGAGGTGGAGCTTGCACT  
GAGCCGAGATTGCACCACTGCACTCCAGCCTGGGTGGCAAAGCGAGACTCTGTCTCAAAA  
AAAAAAAAAAAAAGCCAGGCCAGAGAACTGCATTTCCAAAGACTGCCAACAGAAAAGAA  
GGGAGTGTCCAGGACTAATGGCTTGAGCTTGAGAGTGGTGTGAGGTGCTGGGGCATGGAA  
CTTCCCTGTAGCCCTGCTCCCTGACCTGGGGCACTACGGTCAGGTGCTGCTCCTCCCTC (SEQ ID NO:12)

5012 TTAATGACTTGATGGGGCAACATCCCTTCCCTCATAAACAGGCTGCCGGCTTCCGGCC  
TTTCCAGTCAACACGAGCCAGCCAGGCCAACCTTGAGACTTGCTCCTAGGGAGAGAAC  
GTGTTCTTCTTGGTGACCAACTTCTTGTGACCCAGCCCAAGTTCAAGGCGAGATGCCCA  
GAGGTGAGTTTACCCAGGATCTCCAGCGGGTCCCTTGTCTCCATCAGCCCCAGGTG

FIGURE 3G



Docket No. CL001202  
Application Serial No. 09/820,095  
Inventors: Ming-Hui WEI et al.  
Title: ISOLATED HUMAN G-PROTEIN COUPLED RECEPTORS...

GCACCCCGTGTTCCTTTCCCTTTCCCTTTCCAGGTGGCTGAAGGCTCAGCCTGTGCTCGGTGT  
[C, G]  
CCCCAGGCACTGGGCTACATCTTTTCTGAATCATTATGTTTCAGTCTTACATATCCCCT  
GCCTGGTAGGAAGTCTGTGATCCCCATTTCAGAGGAGAAGACTGAGGCTCAGTGAGGTT  
GAGTCACTTTCTTAAGGCCTCCAGGCCTGTGGGTGACAGGACCCGAGCTCTGGGCAGCA  
GCAGTTCCTATGAGGTGTCCAGGCCCTCCCATCCTGGTCTGCTCTGGGTACTCTCCAG  
GTTGGTAGTGTGACACCCAGAGCTGCGCACATGCTCAGGGAGGTTCTAATAGCAAGAGCC (SEQ ID NO:13)

6169 CTTGCCTGGGGATGTCCCTGGGATCCTGCATCTGTCACAGAGCATGCTCATTCTCTCCAG  
CTGTGAATTTTGTGTTGAATATTGGGACTCAGGACATAGTCTGTAAAGTTTACCTCCACA  
GTGACATCTTTAGCAAGTCCAACATTTACGTGCTCCTGGGCTGGAGGGTCTGTGTGCA  
GACAGCTGTCCCCTGAGCCCTGGTGGCTGGTCTAGCACAGTTGCTGGAGACATCCCATG  
TCCGTAGTTGGAATATGCACAAAGGATTGCTTACTCTTTTGTGTTGTTGTTTGTGTTTGA  
[G, C]  
ATGGAGTCTTGCTCTTGTCCCAAGGCTGGAGTTCAATGGCACGATCTCGGCTCACTGCA  
ACCTCCGCCTCCTGGGTTCAAGCAGTTCTCCTGCTCACCCTGAGTAGCTGGGATTACA  
GGTGCCCGCACTGTGCCAGCTAATTTTGTATTTTAAAGTAGAGACGGGTTTACCAT  
GTTGGCCAGGCTGGTCTCGAACTCCTGGCTCAGGTGACCCACAGCCTCGGCCTCTCAA  
AGTGCTGGGATTACAGGCGTGAGCTGCCGAGAGCTTGGTCGGGGAGACCTGAACCCAGC (SEQ ID NO:14)

7647 AGGTGGCAGGTCCGATGATGGGACAGAGGCTGTAGGTGGGGGACCTAGGGCTGCACCTGA  
GCAGAATCTTTTTTTTTTTTCTTTTTTTTTTTTGGAGACAGAGTCTCGCTCTGTGAC  
CCAGGCTGGAGTGCACTGGCGTGATCTCGGCTCACTGCACACCTCCACCTCCTGGTTCA  
AGCGATTCTCCTGCCTCAGCCTCCCAAGTAGGTGGGACTACAGGCACACACCACACT  
CGGCTAATTTTGTATTTTAAATAGAGACAGGGTTTGTCTGTGTCGGCCAGGTGGTCTC  
[A, G]  
AACTCCTGACCTCAGGTAATCCGCCACCTTGGCTTCTCAAAGTGTGGGATTACAGGTG  
TGCCAGGCCAAGCAGAATCTTAAAAAAGGTGGGGAGAAGCTGGTGAGCAGGTGGATTG  
GTTGAAGCAGGATGTGCACACAGAGGGGCTTGGTGGGTAAAGGCCCTGAGCTGTGTGAG  
GTGAGGTGCCCTTAGGGCTACCTGCCACTGGGTGGAGCTGAAGTGAAGATTGGACTGGG  
GTGGGAAGAAGGTAGTTCAGGATTTAGGGGCCCTGTAAAGCCCCACTAAGGAGCTAAAC (SEQ ID NO:15)

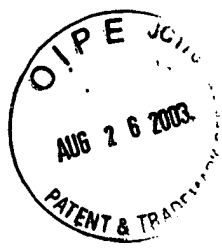
8638 ACAAGAAGCAGAGCATGTGGCTCTGCTCCGACCTCCACCAATCACGACGGCCCTGTCT  
TTCAGAAAGTCCCACCGCTCATTTCTGGCTTCTCAGAGGCCCTCAGCCTTCTTTGCGCCC  
CTGGTCTGGGTGTTCTTCTGCTGCTGCCCTGAGCTGAGTGCCCTGGGCAGCAGTGTCATC  
CTCAGTTGGGGCAGGACCATGCTGGGAGAGTGCCCGATGCTCAAGGGTGCTTCTGCTC  
TGGGGTCTGGGACCCAGAAAGCTCACCTGTCTCTCCCTTCTGCCAGAGCCCCATAGTCC  
[C, T]  
ATGCCTCTGTGACGCGATTAAATGTCCCCAGGTTACAGAAGAGCGAGCAGGAAGGAGTAGC  
CTGTGGTCCCTCAGCAAGGGTGTGGGGTCTGCTTCAATACCAAGCCCTGACTCTAGG  
GCCTGATCTTTTGTGCTATGTCCCCATGCCGGGCATCAAAACTCACCTCCCAAGGT  
ATCTTACCTTCCCTGATCTGTCTATCCAAATTGGACCAGAGGAGCTAGACCTGGAAGAAAT  
CACTTCCGCATCCACCAGGGACAGAAGTGTGAGGAGGAAGGGGCAGGGTGCCTGTCTC (SEQ ID NO:16)

9409 TGAGGTGAGAGGATTGCTTAAGCCCGGAGGGGAGGCTGTAGTGAGCCATGATCATACC  
ACTGCACTAGAGCCTGGACAACAGAGTGAGACCGAATCACTAAAAATAAATTTTGTAAA  
AAGGAGGAAGGGGTCTCCCTTTGTCTTTGAAATACAGTACTGTACTCTTCACTGGCCAG  
GGCATTGCTCCGCTCCCTCTGACCACCTCTTTTATTGACCCCTCCAGCTTTCTG  
TGTGGCCCCACACTCAGGGTACTCTGCGCGCGGGTGGTGAGGTTGTTAAGGTGGGAAG  
[T, G]  
GGGCCTGTCTTCCACCTTGAACCTCCTGCCTTTGAGACTGGGCTGTGGAGGGGAGAC  
ATCCCCTGTGCCATTGGTGACTGCTCTCTCTCCACCTCAGCACCCGTCCTGCCACTGG  
CTAACTGTGGGTGACGAGGACTGCCCGAAGGGGAGGGAGGCACACAGCCACGGTA  
ACTGTGGGCTCTGTCTTCCAGTGCCCTAGCAGGGTGGGGCCGGGCTGGGATCCTGGGT  
GGCTCCTGAGTGACGGCCCTGCTCGCCTCTGTCCCTGCATCTCTTTCTGCCAACCAACC (SEQ ID NO:17)

10504 GACCTCGTGGCCAAGGCTGGAGGGACCTTCGAGGACCTGGCGTTGCTGGTGGGTCCCAAG  
TTGGGGGAGGGTTCTTAGAGGGCTCTGGGAGAGGGTCCCGGGCCCAACCCAGGTGGAA  
AAGCTATGTGCTATGTGAGGGTGGCTCTGTAGGCATCAGAGTTCACTGGGATTGTGACC  
TGGACACCGGGGACTCTGGCTGCTGGCTCACTACTCTTCCAGCTGCAGGAGAAGAGCT  
ACAACCTCAGGTGAGGCCCACTGCTCCAGTGCCAGCTGCTGGGCCATCGCCCTCTC  
[A, C]  
CTGTGGCGGCCAGGACAGACCACCCAGGCCAGGCTCTAGATATTCCTACTACGTGTG  
CAAGGGGGTCCAGGAGCAGGAGAGCTGTCTCAACCCACATCTCCAGCACAGGCT  
CCGTCTGTGCTGCCCCAAGTCTGAGCCCTCCACCCATCTGTCCAGGCCCTGCCCAGC  
TCAGGCTCCTCACTGCCAGCCCTTCTCCACCCACCTCGCTTCTAGTATCTCCCCCTCA  
CAGCAATGGGGTGTTCATTTTACTTTCCCTTCTCCCTTCAGCTTTGTTTTTTTTTTT (SEQ ID NO:18)

10971 GGCCCCTGCCAGCTCAGGCTCCTCACTGCCAGCCCTTCTCCACCCACCTCGCTTCTA  
GTATCTCCCTCCACAGCAATGGGGTGTTCATTTTACTTTCCCTTCTCCCTTCAGC

FIGURE 3H



Docket No. CL001202  
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Inventors: Ming-Hui WEI et al.  
Title: ISOLATED HUMAN G-PROTEIN COUPLED RECEPTORS...

TTTGTTTTTTTTTTTTAAAGACAGAATCTCATTCTGTCAACCAGGCTGGAGTGCAGTGGC  
CCGACCTCGGCTCACTGTAACCTCTGCTTCTGGGTTCAACCGATTCTCCTTCTCAGCC  
TCCTGAGTAGCTGGAATTACAGGTGCTCGCCACTACTCCAGCTAATTTTTATATTTTGG  
[T, -]  
AGATAGAGATGGGTTTTTCAATGTTGGCCAGGCTGGTCTCAAACCCCTGACCTCAGGTG  
ATCCACCACCTCAGCCTCCCGAAGGGCTAGGATTACAGACGTAAACCACCATGTCTGGC  
CTCCCTTCCGCTTTTACCTAACTTTTTTTTTTTTTTTGAGATGGAGTCTCACTCTGTCTG  
CCCAGGCTGGAGTACAGTGGCGGGATCTCAGCTCACTGCAAGTCCGCTTCCGCTGTTCA  
CGCCATTCTCCTGCTCAGCCTCCCAAGTAGCTGGGACTACGGGTGCACGCTCCACGCC (SEQ ID NO:19)

12609 CCAGGAAGTCTACCCAGTTCCAGGGAAGAGTGAGTTCCCATCTCTGGAATCCCTCAGC  
CCTGAGCCTGCCCTTACATCCCCCGCTGCTGGGTCTGTTTAGGGACTCCTCTGTCCCC  
CCTCCTCTCAGCAGGCAGGGAACCTCTGAGGGACAGGTCTTCGTTTGTCTTTTCTGTTT  
CTCACCAATTACATAGGGCTGAGACCCAGGACTCAGGCTTGGGCTGGGGGTTATAGAGT  
CAATTGACAAGTTGGACAGAGGTCTGGCAGGGCCAGCCCCACCTGGGGGTGGGCAAAGCA  
[G, A]  
GTCACCAGAGCCTTCTTCTGCCCCAGGACAGCCACTCACTGGTGGGAGCAACCGGT  
GTGGAGGCCCGCACCTGTCTAAGCTCTATGGAATCCGCTTCGACATCCTCGTACCGGG  
CAGGTAGGCACAGGTAGGGGTAGGCGGGGATGGGATGGGGCAGGCAGACAGGGCTGGA  
GGAGGCATGAGGCTGACAGTCTGAGGCTGAGAGGTTCACTCAGATCTCTCTCAGGCAGG  
GAAGTTCGGGCTCATCCCCACGCGCTCACACTGGGCACCGGGCAGCTTGGCTGGGCGT (SEQ ID NO:20)

13367 TTGGCCCTGCCTCTCCAGGTACCTTTTTCTGTGACCTGCTACTGCTGTATGTGGATAG  
AGAAGCCCATTTCTACTGGAGGACAAAGTATGAGGAGGTGAGCTGAGGTGCTCTGCTTG  
GACCTCGGTTCTGCCACACTTAGGAAGATGTTGGCTGGATCCCTGACCTGCTGTCTCTCA  
TCTGCAGGCCAAGGCCCGAAAGCAACCGCCAACTCTGTGTGGAGGGAGCTGGCCCTTGC  
ATCCCAAGCCGACTGGCCGAGTGCCCTCAGACGGAGCTCAGCACTGCACCCACGGCCAC  
[T, A]  
GCTGCTGGGAGTCAGACACAGACACCAGGATGGCCCTGTCCAAGTTCTGACACCCACTTG  
CCAACCCATTCCGGGAGCCTGTAGCCGTTCCCTGCTGGTTGAGAGTTGGGGCTGGGAAG  
GGCGGGGCCCTGCTGGGGATCTCAAGGATGAGGCCCCAGCATGGAGGATTGGGGGTAGA  
ATTCCACCCTTGAACCCAGCAGACAGTCCCTCCCTGACTCCACCTTGGTAGGGTGCT  
GCCTCAGGGAGCCATAGAAGTCGGCTGTGTTTTGAGACGGCGACAGAACCTGACCCGTGG (SEQ ID NO:21)

14191 ATCGGTCTACATGGGGCTGTGCAGCTGGAGCCAAAAGGCAAGGTAGAAAGAGGAGTGA  
TGGGGGAGGGGATTGTTTCAGCTTCTCTGGTGTCTGTATGCCCCAGGAGAGTCTTAATC  
TAGGGAATGGGGTGGAGTAGGCAGATAATCCACCTCCCTATCCCCAGGCAAGGGCGGAG  
CATGTGCTTGGGCCCCACACTGCTTAGTTTATGAGGACCGGCTGCTTTCAGTGGTAGC  
CCTTTTGCCATGGAGGTCTGGGAGAGAGAGCAGAGGGCGGCAGGGCTAAGTTGGTGATCA  
[T, C]  
TGGGTTCTTCAGGACCTTCTATATCCCTCCTCGGTAACCCCCAGCCCAACCCCTTGGAA  
TCTTCTCCTCAGGCTTCTGAGAGCCCTGGGGGTGGGAGGCTGTGGGAGGCTGTACATCT  
GAAATTCACCTCAGTCCAAGTCATACCTAGGAAGCTGTCTGGGCAGCTGCTCGAGGGAGG  
CCCTGGCTCTGATCCCAGGCTGGATGGAGTGGCTGGAAGGAATGGTTCCAAACAACACCA  
CCGAGATCTCCCTCAGGCTGGCCAGGTTTTGACAGCTGGAATTCTCCTCTTGGTCCCAGGG (SEQ ID NO:22)

14227 AAGGCAAGGTAGAAAGAGGAGTGATGGGGGAGGGGATTGTTTCAGCTTCTCTGGTGTCTG  
TGATGCCCCAGGAGAGTCTTAATCTAGGGAATGGGGTGGAGTAGGCAGATAATCCACCTC  
CCTATCCCCAGGCAAGGGCGGAGCATGTGTCTGGGCCACACCTGCTTAGTTTATGAG  
GACCGGCTGCTTTCAGTGGTAGCCCTTTTGCCATGGAGGTCTGGGAGAGAGAGCAGAGG  
GCGGCAGGGCTAAGTTGGTGATCATTGGGTTCTTCAGGACCTTCTATATCCCTCCTCGGT  
[A, G]  
ACCCCCAGCCCAACCCCTTGAATCTTCTCCTCAGGCTTCTGAGAGCCTGGGGGTGG  
GAGGCTGTGGGAGGCTGTACATCTGAATTCACCTCAGTCCAAGTCATACCTAGGAAGCT  
GTCTGGGCAGCTGCTCGAGGGAGGCCCTGGCTGTATCCAGGCTGGATGGAGTGGCTGG  
AAGGAATGGTTCCAAACAACACCACCGAGATCTCCCTCAGGCTGGCCAGGTTTTGCAGCT  
GGAATTCCTCTTGGTCCCAGGCGGGCAGGGAATTCTAAGTGTCCACCCAGGGAGG (SEQ ID NO:23)

15027 AGGGCCCTGAGGCTGGGTATCCAAGGAGGGGCAGTGCACCTGATTCTCCTTGGGGCC  
CAGAGGAAGCTGATGTATGGCTGGACAAAGTCACGGAGTAAAGCCAGCAAAGCCACCT  
CTTCTGTGTAGTCTTACAGGCATGACTGGAAGTTGGGGGCATCTATGGTAGACATG  
GCACAGCCATGAAGAGACCAGTGGGGTGGTGCAGGGTGGACTTGGGGACCCCTACCCCTGA  
AGACTGAGGCCCTGCAGCTACCAGGTGGGCTAGAAGGTAACCTGGAACAGGCCCTGGGCACT  
[T, C]  
GTGCACCCATGTAGGAGCATGAGGGCCACACTTTTTACCTCAAAGCCCTTGAAGAGTG  
GGCAAAGACAGCAAGAGAGCTGCAGCCTGGGCCCGAGCTCAGAAACAGCTGTGCGCTCAG  
TCTGCGCACAGGCATGCACCCAGGGTAGTGCTGAGGGATGCATGTGTCCCCGTGGGG  
GTGCTGTGCGCAGGCAGGCTCAGGTGCATGCCATGCTCAGAACCCCTGCTGCCCTTTCTA  
GGCAGCCTCCTTGGGGCCCAAGCTCTGCTCCCTGGATCTGCCACCTAGCAGACGTGGGGA (SEQ ID NO:24)

FIGURE 3I

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Docket No. CL001202  
Application Serial No. 09/820,095  
Inventors: Ming-Hui WEI et al.  
Title: ISOLATED HUMAN G-PROTEIN COUPLED RECEPTORS...

15441 GCCTCAGTCTGCGCACAGGCATGCACCCCAGGGTAGTGCCTGCAGGGATGCATGTGTCCC  
CGTGGGGGTGCCTGTGCCAGGCAGGCCTCAGGTGCATGCCATGCTCAGAACCCTGCTGCC  
CTTTCTAGGCAGCCTCCTTGGGGCCCAAGCTCTGCTCCCTGGATCTGCCACCTAGCAGAC  
GTGGGGAGCCTGACCCCATGCCTGTCTATGGAACCCTCCTTGCCTGGTGTGTGTGGCTCCC  
CTCTTCACTGGGCACCTGGATCCAGGCCCACCTGTGTCCCTGACTCAGGGTGGTCCCAGG  
[A, C]  
CTGGCACCTACTCTTTAGAGAGCCCCAGCATCTTTGATGTGGATTGGAGACAATTGCCTG  
GTTCCCTGGGGCAGGTGAAGACTTGGTGCCACAAAGAATGCCACAGTGGATACGCCAGCA  
GGCCACATGGCTGGCCAAGCAATTATTATTATGGATCCCTTGGGCTGTGGGCCTTCCCAT  
CCACCCACCACAATGCCAGGTAGCTGGAGCTGATCATAACAAGAAGGCTCTGGGCA  
GAGTCCATGGCACCAGCACCAGCCAAGGCCCCTCTGAAGACCCGAAGCCAGCCCCTG (SEQ ID NO:25)

Chromosome map:  
Chromosome No: 22

FIGURE 3J